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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,516	01/07/2005	Ken Ooyachi	7390/84218	5956
42798	7590	12/12/2007		
FITCH, EVEN, TABIN & FLANNERY P. O. BOX 18415 WASHINGTON, DC 20036				
			EXAMINER BUSHEY, CHARLES S	
			ART UNIT 1797	PAPER NUMBER
			MAIL DATE 12/12/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/520,516	Applicant(s) OOYACHI ET AL.	
	Examiner Scott Bushey	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2007 and 05 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 1-17 and 19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18 and 20-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
3. Claims 18, 20-31, 33, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 3048499 taken in view of Carlson.

JP 3048499 (English Abstract; Figs. 1 and 4) discloses a process for forming a carbonated water within a bath, including using a pressure increasing water pump to circulate water through a circuit including the hot water bath and a 3-layer hollow fiber membrane structure, wherein hot water is contacted by a pressurized carbon dioxide gas stream. The reference does not include a secondary dissolver in the form of a static mixer means downstream of the membrane contactor.

Carlson (Fig. 1; col. 2, lines 47-50; col. 3, lines 30-34; col. 4, lines 11-14) discloses a two-stage gas liquid contacting process, wherein the secondary contact/gas dissolver is in the form of a static mixing means to provide turbulizing means to provide for a highly efficient further contact means that is of simple construction without moving parts that would tend to require expensive maintenance over time. It would have been obvious for an artisan at the time of the invention, to provide the water carbonating process of JP 3048499 with a simple means for insuring greater contact between the phases, such as a simple static mixing means, in view of Carlson, since such would greatly improve the contact efficiency of the Japanese process by very simple and inexpensive means. With respect to the specifics of the structure of the static mixing means, it would have been obvious for an artisan at the time of the invention, to utilize any conventionally known static mixer structure, such as recited by instant claims 26-28, to optimize the efficiency of the process. Applicant should note that it would have further been obvious to operate the process as suggested by the reference combination to supply water and gas to the contactors at any desired flow rates, to produce a product at any desired temperature and free carbon dioxide concentration, such being an obvious result of operation of the process to obtain a desired product stream.

4. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over the reference combination as applied to claims 18, 20-31, 33, and 34 above, and further in view of JP 2001-293343.

The reference combination as applied to claims 18, 20-31, 33, and 34 above substantially discloses applicant's invention as recited by instant claim 32, except for the inclusion of the water line flow switch.

JP 2001-293343 (Fig. 1) discloses a process for carbonating a hot water bath in a manner very similar to that as set forth by the primary reference combination, wherein there is provided a flow switch within the water line to the membrane contactor device. Wherein it is well known within the art that a water pump should always be protected against a dry water feed line, to avoid damage or burnout of the pump, it would have been obvious for an artisan at the time of the invention, to provide the process as suggested by the primary reference combination, with a flow switch to shut down the water pump in the event of a dry water inlet line, in view of JP 2001-293343, since such would protect against damage to pump.

Response to Arguments

5. Applicant's argument, see the last full paragraph on page 9 and the paragraph bridging pages 9 and 10 in the remarks section of the amendment, filed October 5, 2007, with respect to the Meinert reference have been fully considered and are persuasive. The rejections of claims 18, and 20-34, based upon the reference combinations including the Meinert reference have been withdrawn.

6. Applicant's remaining arguments against the applied prior art, filed October 5, 2007, have been fully considered but they are not persuasive. With respect to the arguments against the prior art combination, including the Carlson reference, Carlson clearly discloses highly effective membrane contact means for injecting gas into a liquid

flow, followed immediately by mixing within the same conduit by passage through multiple static mixing elements, which promote effective contact by preventing coalescence of small gas bubbles into larger less effective gas bubbles. Further, regarding the reference combination as applied to claim 32, as stated previously, one having ordinary skill in the art would, given the teachings of the references within the combination, know to provide means to shut off the pump when liquid to be pumped is not present, thereby protecting the pump from burning up during pump operation within a dry line.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Bushey whose telephone number is 571 272-1153. The examiner can normally be reached on M-Th 6:30-5:00.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Scott Bushey
Primary Examiner
Art Unit 1797


12-5-07

csb
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